



Medium Altitude Endurance Unmanned Aircraft Systems (UAS) — Fielding a UAS in Record Time

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On June 8, 2006, the Tactical Concepts Product Office (PO) was established within the UAS Project Office to help support the U.S. military fight against improvised explosive devices (IEDs) in Iraq and Afghanistan. The Extended Range/Multi-Purpose (ER/MP) UAS is the Army's Program of Record for medium altitude systems but will not be fielded to the Army's 10 divisions until 2009. In the interim, Tactical Concepts PO is charged with providing a current capability.

A UH-60 Black Hawk helicopter flies over Balad Air Base, Iraq, Feb. 11, 2007. (U.S. Air Force photo by SSGT Michael R. Holzworth, 31st Communications Squadron.)

Their initial mission was to field three complete production representative systems, called Warrior A, in 6 months. This effort included procuring and producing the aircraft, providing support assets and spares as well as training Soldiers and preparing them for their deployment. Typically, this effort requires 24-28 months to complete, but the PO completed it in only 6 months. Once the aircraft deployed into theater, their follow-on mission required working with the combat aviation brigade (CAB) to validate the impact UAS had on the division's fight against IEDs.

The System

The Warrior A is a UAS composed of two aircraft, day/night camera, laser illuminator, laser designator, synthetic aperture radar, communications relay package, ground control station, satellite antennas, video dissemination equipment, and associated ground and maintenance equipment. The system is capable of both line-of-sight (LOS) and beyond-LOS operations. The aircraft's gross take-off weight is 2,250 pounds. It has a cruise speed of 70 knots, a dash speed of 125 knots, a service ceiling of 25,000 feet and an endurance of 30+ hours. The Warrior A UAS is in the ER/MP UAS class

and typically performs long dwell zone, route and area reconnaissance, surveillance, target acquisition (RSTA) and analysis missions.

Getting to the Warfighter

The process of acquiring and deploying the three systems in only 6 months was a phenomenal effort and a testament to sheer determination and cooperation between the Tactical Concepts PO, other Army acquisition organizations and defense contractors. Every opportunity was exploited for pulling the program forward in the schedule, bit by bit. The entire PO team worked as a sharply focused





SSG Rutledge, Alpha Co., 15th Military Intelligence Battalion, performs preflight checks on the Hunter MQ-5B in Iraq. (U.S. Army photo by Tarah Hollingsworth.)

Phase II involved using UAS for reconnaissance and security operations. An important finding was that the UAS mission must be tied to a new “find-fix-finish” construct rather than just being used in the historical intelligence, surveillance and reconnaissance mode. In this effort, the UAS follows the flight plan formulated during mission planning. Each UAS has a manned attack aircraft asset responsible for providing supporting fires. The manned asset is either on strip alert or conducting operations in the same zone as the UAS. Instead of merely relaying the discoveries to a central command location for disposition, the intelligence information is provided as a target handover directly to a manned attack aircraft that can provide the force necessary to neutralize or eliminate the enemy target(s). A critical advantage to this approach is decreasing the sensor-to-shooter time or kill chain. Previously, when manned attack aircraft located a target, they would have to complete the rules of engagement (ROE) while being exposed to potential enemy fire. But with this manned/unmanned mission scheme, once the UAS locates the target, ROE can be completed while the

group to accomplish this task in such short order. PO personnel kept in constant contact with vendors to expedite the process for various subsystems and components. The PO team successfully worked through all acquisition, engineering and logistics challenges and was able to field these urgently required systems and provide a true force multiplier to combatant commanders in their immediate fight against terror. The Warrior A's RSTA capabilities would soon become the weapon of choice within the operational commanders' arsenal.

- Allowed early development of tactics, techniques and procedures (TTPs) to facilitate fielding of ER/MP companies.
- Conclusively demonstrated that dedicated UAS in direct support of tactical commanders are more effective than other task-organized relationships. Under a direct support relationship, the tactical commander can be reasonably assured he will have the assets he needs when he needs them. The UAS can be integrated into the scheme of maneuver and dynamically retasked as the operation unfolds.

Integrating the UAS Into the CAB

Simultaneously with the Warrior A effort, we worked jointly with the 25th Infantry Division's CAB to employ a 5-phase operation to integrate the Hunter UAS and validate the various reasons divisions require dedicated RSTA assets in their fight against IEDs. *Phase I* involved integrating UAS into the Army divisional CAB structure. This was accomplished by employing the Hunter UAS in the CAB in the same manner as the ER/MP, but 2 years sooner. This resulted in two immediate benefits:

A Warrior A UAS sits fueled and ready to deploy to assist troops in Iraq. (U.S. Army photo by Tarah Hollingsworth.)



An Alpha Co., 15th Military Intelligence Battalion, Hunter UAS from Fort Hood, TX, awaits an operational deployment in Iraq. The Hunter UAS is being operationally integrated into the U.S. Army's divisional CAB structure to enhance RSTA assets in the fight against IED placement and discovery. (U.S. Army photo by Tarah Hollingsworth.)



manned aircraft is en route. As a result, once the attack aircraft is in range, it merely has to verify the appropriate target before launching missiles or other means of attack, thereby minimizing its exposure to counterattack and significantly increasing the aircrew's survivability.

Phase III consisted of fielding the first Communications Relay Payload in UAS history while conducting combat operations. This significant accomplishment increased the commander's command and control, and extended the range of communication across the operational environment by an additional 195 kilometers, greatly enhancing situational awareness.

Phase IV provided for using UAS as part of laser operations. This activity provided an enhanced laser designation capability for manned aircraft in combat operations. Previously, when

enemy targets were located by UAS, manned attack aircraft were sent to the intended destination to locate the target, laser designate it and then fire

missiles to eliminate the target. While it was a very useful technique, it inherently exposed U.S. aircraft to enemy fire. However, through a manned/unmanned teaming approach, the risk to our manned aircraft is greatly reduced. In performing its normal mission, the UAS can locate the target a great distance forward of the manned aircraft, laser designate the target and allow our attack aircraft to launch its laser guided missiles without exposing crews to hostile fire. Employing UAS in this manner serves as a force multiplier and provides warfighters with other methods to tactically engage enemy targets.

Phase V provided for direct UAS attack operations. This involved fielding a

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Viper Strike munitions capability on the Hunter UAS for the first time in a war zone. This demonstrated that the UAS can provide the commander the ability to engage high-value fleeting targets, as well as those that require long dwell times before they expose themselves.

“Providing these enhanced capabilities to our combatant commanders and their Soldiers has proven to be such a resounding success that the Army has funded another system to provide dedicated tactical assets that can be employed at the division level,” explained COL Don Hazelwood, Project Manager UAS PO, Program Executive Office for Aviation. “While this 5-phase approach is helping the Army define its TTPs for UAS employment, the full benefits that UAS bring to the warfighter today will not be known for years to come.”

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